AN INTERESTING COLLECTION OF AMPHIBIANS AND REPTILES FROM CHOLISTAN DESERT, PUNJAB, PAKISTAN[1]

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This report is based on a collection of 60 amphibians and reptiles made from Northern Cholistan Desert, Punjab, Pakistan. The collection includes new records for the area *Rana breviceps* and *Spalerosophis arenarius,* and validate taxa *Natrix sancti-johannis* and *Bungarus sindanus.* Moreover, it throws light on the importance of Cholistan Desert as a zoogeographical barrier between Oriental and Palaearctic Regions.

In summer 1980, I had a chance to tour northern Cholistan Desert and make a small (60 specimens) but interesting collection of amphibians and reptiles. Information pertaining to the herpetology of this area is scanty. However, recently our knowledge about the herpetology of Pakistan has been furthered by the works of Minton (1962, 1966) and Mertens (1969). These concern the herpetology of the Lower Indus Valley and Baluchistan. Other works pertaining to nearby area are Blanford (1879) and Loveridge (1959) dealing with herpetofauna of Rajputana, Bahawalpur, and Thar Parker.

Geography of Cholistan Desert

Cholistan is the south-eastern desert of Pakistan, spread over an area of about 27,800 sq. km in the districts of Bahawalpur, Bahawalnagar, Khairpur and the greater part of Thar Parker. It lies between latitude 24°52′ and 29°45′ North and longitude 69°52′ and 73°5′ East.

The topography of Cholistan is divided into southern Greater Cholistan and north-western Lesser Cholistan. This collection is from Lesser Cholistan, which includes desert margins, with undulating to rolling dunes and interdunal depressions of sand and loam of light grey colour. The collections were made from Dahranwala, Chak 141 Murad, Chistian, Fort Abbas, Haroon Abad, Fort Mroat in Bahawalnagar District; Chak 190 Murad and Bakshan Khan in Bahawalpur District. The land in these districts is being rapidly reclaimed and dunes are being bulldozed, destroying natural land form, fauna and flora. Two canals, Fordwah, and Sadquia from Sulaimanki Headworks, ramify throughout the districts.

The climate is arid, tropical and continental with a mean truly erratic annual rainfall of 100 to 200 mm and mean minimum temperature of the coldest months is — 2.2°C and maximum of the hottest months 49.7°C (Beig *et al.* 1979).

Habitations are extremely scattered and small sized. Economy is mainly pastoral, large herds of camel, cattle, sheep and goats graze the area. At spots near Indo-Pak border, brackish water occurs at a depth of 30 to 90 metres, with salt content 9000 to 24000 ppm. However, sweet water is also available at many places at shallow depths, making cultivation possible.

[1] Accepted August 1983.

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Natural vegetation of Cholistan is of typically xerophytic in eharaeter and has trees, shrubs, grasses and forbs.

TREES. *Prosopis spicigera, Tamarix articulata, Capparis decidua.*

SHRUBS. *Zizyphus nummularia, Calligonum polygonoides, Haloxylon salicornicum, Aerua javanica, Calotropis gigantea, Tamarix gallica, Alhagi camelorum, Salsola foetida.*

GRASSES. *Lasiurus hirsutus, Aristida depressa, Cymbopogon jwarancusa. Cenchrus ciliaris, Saccharum munja.*

FORBS. *Citrullus colosynthis, Dipterygium glaucum, Crotalaria burhia, Corchorus depressus* and *Tribulus terrestris.*

SYSTEMATIC ACCOUNT OF SPECIES

AMPHIBIANS

Family BUFONIDAE

Bufo stomaticus Lütken

Material collected. Dharanwala (5), Haroon Abad (3), Fort Abbas (4), Fort Mroat (3), (number in parenthesis indicates number of specimens collected).

Taxonomic remarks. Snout-vent length 52-61 mm, females larger. Males have longer hind limbs reaching to shoulders, while females have short, reaching to elbow. Tarsal ridge feebly (3 specimens) or prominently (12) indicated. Males less wartier than females. Nuptial excrescences in male on the inner side of 1, 2, and 3rd finger and inner carpel tubercle. Distinct transverse stripes on brachium and antibrachium, in both sexes.

Family RANIDAE

Rana breviceps Schneider

Material collected. 141 Murad (1), three males were spotted calling alongwith *B. stomaticus,* and *Rana tigerina,* in the shallows of a water course. Two escaped in the thick grass.

Taxonomic remarks. Snout-vent length 75 mm, body slender than those of Alpine Punjab (Khan 1979). No sub-tibiotarsal tubercle as noticed by Leviton *et al.* (1956) and Bhaduri and Kirpalani (1954) in the material from southern India.

This report is the first record from Cholistan Desert for this frog. However, it has been reported from desert areas in the lower Indus Basin (Minton 1966). Apparently, present collection is due to Sutlej River and its canals, irrigating the area. Similar riverine distribution for the species has been demonstrated for the Ravi River (Khan in Mirza and Ali 1972) and the Chenab River (Khan 1968).

Rana cyanophlyctis Schneider

Material collected. Chak 141 Murad (4), Fort Mroat (3), Haroon Abad (1).

Rana tigerina Daudin

Material collected. Chak 141 Murad (1), Dahranwala (1).

Specimens are typical *t. tigerina,* but are slimmer than those of alpine Punjab.

LIZARDS

Family GEKKONIDAE

Hemidactylus leschenaulti Dumeril and Bibron

Material collected. Daharanwala (1), Chak 141 Murad (4), Fort Mroat (1).

Taxonomic remarks. Snout-vent length males 46-49, females 52-56; upper labials 9-10, lower labials 7-9; preano-femoral pores 20-26 in males, in females absent; lamellae under fourth toe 10-12.

Specimens were collected from inhabited houses, during night, feeding on photophylic insects.

Stenodactylus orientalis Blanford

Material collected. Chak 141 Murad (4), Fort Mroat (1).

Taxonomic remarks. Females longer (50 mm) than males (46 mm); however females have shorter tails (35 mm) than males (37 mm); upper labials 10-12, lower labials 9-11.

Ground geckos, active from sunset to dawn. Very agile on loose sand, while running throw up sand. When handled twitch tail and faint squeaks are given.

Family SCINCIDAE

Mabuya dissimilis (Hallowell)

Material collected. Chak 141 Murad (2).

Taxonomic remarks. Two mid-dorsal scale rows bicarinate, rest tricarinate.

Inhabits reclaimed areas, frequenting grass fields. Very agile. The specimens were caught from under the light of a lamp, apparently, attracted by the photophylic insects. They perhaps avoid the intense day heat, and were active during night.

Family AGAMIDAE

Agama sp.

A large agama of the size of about 170 mm, with flat body, crept into a burrow at the roots of a dry *Alhagi camelorum* bush. The dorsum of the body had a row of 3 large dark and white ocelli, in mid-dorsal body. All efforts to extract it failed, due to the failing light and loose sand. Most probably it was *Agama minor,* reported from Jhang District, Punjab, Pakistan by Khan (1972).

Family LACERTIDAE

Acanthodactylus cantoris cantoris Günther

Material collected. Chistian (2), Fort Abbas (3), Fort Mroat (3), Chak 141 Murad (2), Bakhshan Khan (1).

Taxonomic remarks. Females longer (79 mm) than males (68 mm); supralabials 7-9, infralabials 6-9; wide range of variation in number of supralabials in contact with large suboculars: 3, 4, 5th in contact (in three specimens); 4, 5, 6 on right side while 4, 5, 6 on left (1); 5, 6 on left, while 4, 5, 6 on right (1); on both sides 4, 5, 6, 7, and 8 (2). Ventrals in 10-13 rows: femoral pores in males and females 35-43.

Adults of both sexes with a dark reticulum on light grey dorsum, tail tip blue. Juveniles of S. V. length of 26-29 mm with 7-8 dark longitudinal stripes on the body dorsum.

Family VARANIDAE

Varanus bengalensis (Daudin)

A large varanid with distinct double keel on tail, was seen on roadside, near Fort Mroat Town. It quickly went down a burrow at the root of a thorny bush.

SNAKES

Family COLUBRIDAE

Natrix sancti-johannis Boulenger

Material collected. Fort Mroat (2), Bakshan Khan (1).

Taxonomic remarks. Ventrals 149-158, subcaudals 85-88; mid body scale rows 18-19 supralabials 9, infralabials 10; there is no oculo-supralabial dark stripes, validating the taxon *sancti-johannis* (Khan 1984 a). The present report is the first of this snake from Pakistan.

Psammophis schokari (Forskal)

Material collected. Fort Mroat (1), Chak 190 Murad.

Taxonomic remarks. Ventrals 186-187, tails in both damaged; mid body scale rows 17. Specimen from Chak 190 Murad has no lineate design like that from Fort Mroat.

This snake is typical of the dunes, and is very agile on loose sand. It is called "Tir Mar" or arrow snake by local people, as it moves with considerable speed on sand.

Spalerosophis arenarius (Boulenger)

Material collected. Fort Mroat (1), Chak 141 Murad (1).

Taxonomic remarks. Ventrals 238 and 245; subcaudals 82 and 90; mid body scale rows 25; supralabials 11, infralabials 12/11, 11/12; temporals 4, 4.

Differs from material reported by Smith (1943), in having higher ventral and subcaudal counts. However, except for the higher subcaudal counts, scutellation falls within the range of material reported from Sind (Mertens 1969) and southern Baluchistan (Minton 1966).

This is the first report of the Red Spotted Diadem snake from Punjab, Pakistan.

Family ELAPIDAE

Bungarus sindanus Boulenger

Material collected. Chak 141 Murad (1), Chak 190 Murad (1).

Taxonomic remarks. The Kraits are clearly distinct from *B. caeruleus* because of their higher scutellation.

	Midbody scale rows	Ventrals	Subcaudals
Minton (1966)	15	205-216	43-54
Mertens (1969)	15	202-214	40-55
Present collection	17	223-232	51-59

Naja naja naja (Linnaeus)

Material collected. Bakshan Khan (1).

Taxonomic remarks. Male, ventrals 188, subcaudals 67; scale rows at hood 24, mid body 21; a cuneate scale between 4th and 5th infralabial; posterior genial long and narrow, unlike as in Smith (1943) where anterior is long.

No dark stripes at the ventrals on the ventrum of hood, unlike the material reported from Pakistan (Minton 1966, Mertens 1969, and Khan 1977 and 1982).

ZOOGEOGRAPHICAL IMPORTANCE OF CHOLISTAN DESERT

The Cholistan Desert demarcates humid and mesic Ganges Basin from dry and arid Indus Basin. Undulating sand dunes, general absence of vegetation, high temperature and prevailing xeric conditions not only make it impassable for Oriental forms but also for highland Palaearctic forms. Recently, due to the elaborate canal systems and gradual reclamation of lower and upper Indus Valley, environmental conditions have changed. However, the Cholistan zoogeographical barrier does not allow free East-West flow of species, for which the Mekran coast was the route in the past.

Many Cholistan-o-Sindian elements do not cross into Pakistani Punjab on the West, similarly into India in the East. On the West, the Sutlej River forms the boundary. Forms confined to the Cholistan Desert are *Stenodactylus orientalis, Psammophis schokari, Spalerosophis arenarius* and *Bungarus sindanus.*

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